

XXIX.—RHYTHMIC SOUND PRODUCED BY TERMITES AT WORK.

Is it generally known that the work done at night by termites is carried out with a regular rhythm? When I accompanied the well-known naturalist, the late Dr. N. Annandale, during his researches on ants and termites in the island of Barkuda in the Chilka Lake, I called his attention to the characteristic rhythmic sound produced by thousands of termites biting dry leaves during the early hours of the night. The pucca platform or 'chabootra' on which our camp beds were placed was covered with dry leaves and these were being eaten by termites. The sound produced by their multitudinous bites in unison resembled that of thousands of pins pricking parchment or dry leaves simultaneously, and this occurred in a regular rhythm reminding one of the timing of the rhythmic flash of swarms of fireflies on a dark night, so beautifully seen in the Terai districts after the rains.

This rhythmic sound can only be heard on an intensely quiet night and even then one must listen carefully. When once heard it is unmistakable and quite impressive in its way—a graphic record of great industry and perfect team work.

3, HENEKER DRIVE,
COLABA, BOMBAY.
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XXX.—THE SMALL RED ANT *SOLENOPSIS GEMINATA* sub. sp. *RUFA*, JERDON, AND ITS USEFULNESS TO MAN.¹

(With a plate and a block.)

The ant is widely distributed in the province of Bihar and Orissa and is also reported to occur in abundance nearly all over the tropics of both hemispheres. But in spite of its wide occurrence and use to man in more than one way, very little is known of its activities beyond its notorious bite.

In the course of my investigations from the year 1928 to 1930, I have found that the ant collects and destroys:—

- (1) The lac predators and parasites in the field as well as in the lac godowns.
- (2) The termites (white ants).
- (3) The bed bugs.

The ant, therefore, can be used in a practical way to get rid of the aforesaid insects in the manner discussed in this note.

The ant may be recognised by the following characters:—

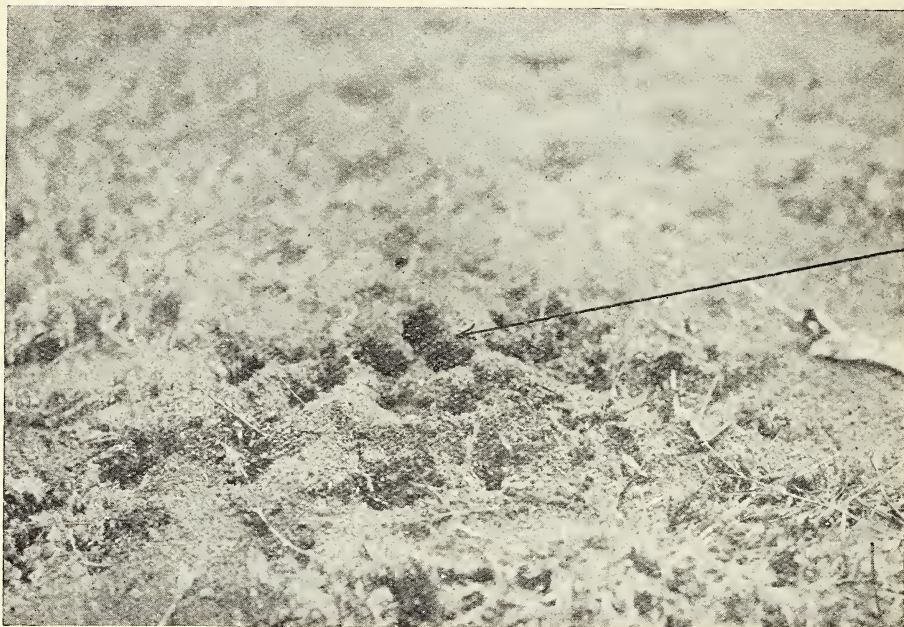
- (1) The waist is two jointed in all the sexes.
- (2) The worker minor (Pl., fig. 1) is dark reddish yellow in colour.

¹ This note is the modified form of the paper read at the eighteenth session of the Indian Science Congress, 1931.

(3) The antennae (feelers) are 10 jointed in the worker minor.

(4) The worker minor measures from one-eighth to one-fifth of an inch.

(4a) The worker major (Pl., fig. 2) is from one-fourth to one-third of an inch in length,



Nesting site of the Small Red Ant (*S. geminata* sub. sp. *rufa* Jerdon). The black dots show entrances to the nest.

(5) The nest (see photo) is generally situated under a tree or in the open field or at the base of the outer walls of houses. On the surface of the nest fine excavated earth is found heaped with a number of small round holes or holes of other shapes in it. The nature of the soil affects the appearance of the nest, e.g. in the rains the heap of excavated earth may not be prominent and the holes are seen in loose earth only.

(6) The ant guards its nest very cautiously and the intruder is attacked by a number of workers, each inflicting a very painful sting. The ant catches and holds the skin of the intruder with its mandibles, curls its body and thrusts the sting into the skin near the place held by its mandibles.

To check the activities of these ants the colonies should be collected and used as follows:—

Lac predators and parasites.—If the ant be absent in the vicinity of lac godowns, it should be brought in empty baskets or kerosene tins with loose earth from its nest. The earth should be

heaped in a corner of the godown or in a place nearby to give the ant easy access to the lac. If the colonies are collected from more than one nest they should be kept separately. The ants will first make a nest and then attend to lac.

To make the best use of the ant, the cultivator should scrape all the lac, except the portion to be used as brood, soon after reaping from the field. The same should be done with the lac used as brood after its removal from the trees. The lac should then be spread in the godown. This prompt scraping will by itself kill a good number of the enemies of the lac insect, and a large majority of the enemies that have been exposed during scraping will be removed by the ant, which avoids the lac and dead or crushed lac insects but assiduously removes the exposed and partly exposed stages of the lac predator, parasites and scavengers. By doing so, it saves a fairly good portion of the stored lac from the damage by the predatory larvae and beetles, which feed on the stick lac and prevents a large number of the enemies of the lac insects from reaching the adult stage. These otherwise would infest the lac crop in the neighbouring fields. The ant, therefore, along with the other ants, might profitably be used for the control of predators and parasites of the lac insect in lac godowns from the time the crop is reaped to the time the stick lac is converted into seed lac.

The other household ant which is almost equally useful in removing the various stages of the lac enemies from stored lac is the common small black ant *Iridomyrmex anceps*, Roger. Its bite is not painful.

Termites (white ants):—The colonies of the ant should be brought as stated previously and let loose in the field. The white ant passage-ways should be exposed occasionally by turning over the soil at the surface to a depth of about two inches, and the termitaries should be dug up. This exposes the termites to the ant which picks them up very quickly, as they offer little resistance and carries them to its nest. I have tried and found the ant a successful check against termites in my kitchen garden, and at my suggestion Mr. P. M. Glover, the Entomologist at the Institute, tried it in his flower garden. He has recorded a summary of these observations in *A Practical Manual of Lac Cultivation* 1931. It has also been used to circumvent the activities of termites in the Namkum plantation. However, in localities where termite nests are too deep and abundant it would be more economic to kill the queens and workers in the nests by fumigation.

In addition to the ant *S. geminata* sub. sp. *rufa* there are several other species of ants which attack termites at Namkum. The most efficient of these is a black ant *Lobopelta ocellifera*, Roger of the sub-family *Ponerinae*.

Bed Bugs.—Boiling water should be poured over infested furniture and infested clothes should be boiled well in water for some time. By doing so, some of the bugs and their younger stages die, others are partly scalded with hot water and lose their agility. Furniture and clothes, after the above treatment, should be shifted directly to an open space near the nest of the ant. In places where it is not possible to do so, furniture and clothes should be removed